

Fact Sheet

MICROWELLS FOR RAPID SITE CHARACTERIZATION, FORT WAINWRIGHT, ALASKA

PROBLEM

For sites known or suspected to be contaminated with fuels or solvents, information about groundwater quality and groundwater flow patterns is essential. Conventional methods of evaluating groundwater quality and flow include soil borings with installation of monitoring wells followed by off-site laboratory analysis of groundwater samples. These methods are slow and expensive, and do not produce timely results to guide further field investigations.

SOLUTION

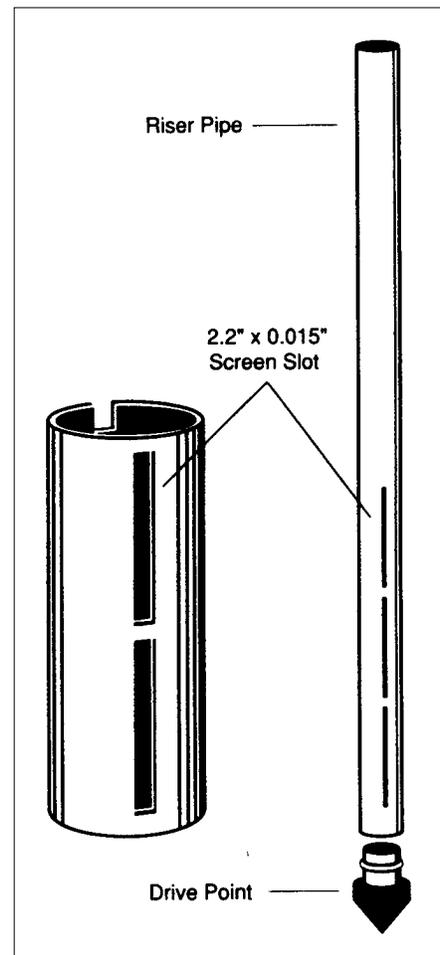
Microwells, developed by Pine and Swallow Associates, are an alternative to conventional drilling for rapid evaluation of sites for contaminated groundwater. The wells consist of small-diameter steel pipe with a vertically slotted screened section and a drive point that is vibrated into unconsolidated soils using a small, portable rig. Rapid installation is possible to depths of more than 100 feet, with no soil cuttings that require disposal. Groundwater samples can be obtained immediately after well installation using inertial bailers and small-diameter tubing. Little purge water is generated because of the small well diameter. Analysis of samples with field instruments yields data that are immediately available to guide further field installations for plume identification and delineation.

RESULTS

Testing of microwell techniques at Fort Wainwright during summer 1993 demonstrated the ability to delineate groundwater contamination plumes both horizontally and vertically in discontinuous permafrost terrain. Rapid installation (up to 22 wells in one day) and field analysis allowed real-time estimation of groundwater flow patterns and plume extent. Installations were left in place for subsequent sampling.

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